CEP Methods Appendix: Standard search filters
July 2023

CEP has several standard search filters for specific types of evidence that are frequently used in the preparation of CEP evidence reports. As with other CEP methods, they are pragmatic tools designed to apply standardized and good quality methods to rapid reviews. Their use is not obligatory, and analysts may elect to use filters developed by other agencies (please see below for a selection of those sources). Search syntax is provided in the forms that CEP uses for routine searching: Ovid MEDLINE, Embase native syntax, and EBSCO CINAHL. Filters should not be used with the Cochrane Central Register since that database already selects for controlled clinical trials.

Guidelines[1,2]

General purpose databases	
MEDLINE	`(guideline* or guidance).mp. or exp Guideline/ or exp Practice Guideline/`
Embase[3]	`('practice guideline'/de OR guideline:ti,ab OR guidance:ti,ab)`
CINAHL	`(MH "Practice Guidelines") or guideline* or guidance`
JBI	`limit [search line] to (best practice information sheets or recommended practices)`
Specialty databases (filters not necessary)	
ECRI Guidelines Trust	`Access through the Evidence-Based Health collection on Ovid and use standard Ovid search syntax (no filters required)`
GIN	https://g-i-n.net/international-guidelines-library/
TRIP	https://www.tripdatabase.com/ (guidelines filter)
CMA CPG	https://joulecma.ca/cpg/homepage (Canadian guidelines)

Systematic reviews

MEDLINE	`limit [search line] to (meta analysis or systematic reviews)`
Embase	`[search line] AND ([systematic review]/lim OR [meta analysis]/lim)`
CINAHL	`[search line] AND Limiters - Publication Type: Meta Analysis, Meta Synthesis, Systematic Review`
JBI	`limit [search line] to (evidence summaries or systematic reviews)`

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[1] Many guidelines are not published in the peer-reviewed literature and thus will not be found by searching MEDLINE, Embase, or CINAHL. Searches of specialized guideline databases and relevant professional societies should be considered obligatory.

[2] While the sensitivity of these filters for general-purpose databases is high, their specificity is poor. Therefore it may be necessary to restrict searches to article titles when the stock filter yields an impractical number of hits. Specialized databases will be more specific and should be the nucleus of a guideline search. (see Lunny et al. 2019: https://doi.org/10.1016/j.jclinepi.2019.09.022)

[3] The Embase publication type "guideline" is assigned to articles liberally, causing the 'practice guideline'/de filter to lose specificity. If the filter as described above yields too many hits, use the keyword component only.

Clinical pathways and algorithms

MEDLINE	1. exp Critical Pathways/ 2. ((clinical or critical or care) adj path$).mp. 3. (care adj (map$ or plan$)).mp. 4. patient care planning/ 5. algorithm$.mp. or exp Algorithms/ 6. 1 or 2 or 3 or 4 or 5 7. nursing protocol$.mp. 8. (nursing adj (care plan or protocol$)).mp. 9. professional standard$.mp. 10. 7 or 8 or 9 11. 6 or 10
Embase	'clinical protocol'/exp OR 'clinical pathway'/exp OR ((clinic* OR care* OR nurs*) NEAR/3 (pathway* OR algorithm* OR protocol*))

CINAHL	1. (MH "Critical Path") or (MH "Algorithms") or (MH "Decision Trees")
	    or (MH "Protocols+")
	2. (care or clinic* or decision* or nursing*) n2 (protocol* or path*
	    or algorithm* or map*)
	3. S1 or S2

Clinical decision support

MEDLINE	1. exp Medical Records Systems, Computerized/
	2. exp decision support systems, clinical/
	3. exp health information systems/
	4. ((electron* or computer*) adj3 (record* or informat* or chart*)).mp.
	5. (((clinic* or comput* or electron* or automat*) adj3 decision*)
	    and (decision* adj3 support*)).mp.
	6. ((order* adj2 (set* or panel*w)) and ((electron* or computer* or autom*)
	    adj2 order*)).mp.
	7. (EMR or EHR or dashboard).mp.
	8. ((remind* or alert* or warn*) adj2 (electron* or autom* or comput*)).mp.
	9. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 _(broad filter)_
	10. 2 or 5
	11. 9 and decision.mp.
	12. 10 or 11 _(narrow filter)_

Embase	[in development]
CINAHL	[in development]

Date and language restrictions

MEDLINE	limit [search line] to (english language and yr="2013 -Current")
Embase	#[search line] AND [english]/lim AND [2013-2023]/py
CINAHL	_Use limiters in Advanced Search window_
JBI	limit [search line] to yr="2013 -Current" _[language limiter is not available]_

Other publication type restrictions used in CEP searches

MEDLINE	`[search line] not case reports.pt.`

Embase	`#[search line] NOT ('conference abstract'/it OR 'conference paper'/it)`
	`#[search line] NOT 'case report'/de`
	`#[search line] NOT [preprint]/lim`

CINAHL	`S[search line] NOT PT (Anecdote OR Case Study)`

Other sources of search filters

CADTH (https://www.cadth.ca/resources/finding-evidence/strings-attached-cadths-database-search-filters)

"Strings Attached" is a collection of complex search filters developed by information specialists at the Canadian Agency for Drugs and Technologies in Health. While they are not described as optimized for sensitivity or specificity, the breadth of keywords and concepts included in each search indicates they will be relatively high in sensitivity. Filters include systematic review/meta-analysis/health technology assessment (all in one filter), randomized controlled trials, guidelines, economic evaluations and cost models, and health utilities/quality of life. Filters are provided in various combinations of Ovid MEDLINE, Pubmed, and Ovid Embase syntax.

Cochrane (https://training.cochrane.org/technical-supplement-chapter-4-searching-and-selecting-studies-v63)

The 2022 edition of the Cochrane Handbook has moved its content on search methods to a technical supplement. Filters for systematic reviews are discussed in section 1.3.4 beginning on page 22: the 2018 NLM filter that CEP uses is the filter Cochrane recommends when searching MEDLINE.

Filters for clinical trials are discussed in the context of describing how studies are identified for inclusion in the Cochrane Central Register of Controlled Trials. Specific filters are documented in section 3.6, beginning on page 57. The 2008 Cochrane Highly Sensitive Search Strategy remains the recommended filter for identifying RCTs in MEDLINE: it comes in versions optimizing sensitivity and balancing sensitivity and specificity. The Cochrane Highly Sensitive Search Strategy for identifying controlled trials in Embase was updated in 2020, and a CINAHL filter was updated in 2019. Reviewers are also directed to the InterTASC site for a collection of search filters.

HIRU Hedges Project (https://hiru.mcmaster.ca/hiru/HIRU_Hedges_home.aspx)

Hedges is a collection of filters that were developed for the National Library of Medicine; they are built in to the Ovid MEDLINE search interface as "Clinical Queries." Hedges is notable for the validation studies that have been done on their filters and for the availability of sensitive, specific, and optimized versions for each filter category. Categories include reviews, therapy, diagnosis, prognosis, causation, economics, clinical prediction guides, qualitative, and costs. Filters are available for MEDLINE (both Ovid and Pubmed syntax), Embase (Ovid syntax), and PsychINFO (Ovid syntax).

HTAi SuRe Info (https://sites.google.com/york.ac.uk/sureinfo/home)

"SUmmarized REsearch in Information Retrieval for HTA" is a collection of resources for systematic reviews and health technology assessment reports. It is maintained by the Information Retrieval special interest group of Health Technology Assessment International and was developed as part of the EUnetHTA Core Model for health technology assessment.

SuRe Info does not include actual search filters. Instead it includes links to various external sources of filters, including CADTH, BMJ Clinical Evidence, and InterTASC (the NICE information specialists' working group). SuRe Info also includes tutorial essays on search strategy development, the effects of limiting searches by date and/or language of publication, and other aspects of information retrieval.

The HTAi Information Retrieval special interest group (https://htai.org/interest-groups/information-retrieval/) also publishes an occasional newsletter that includes a bibliography of recent articles on literature searching and related topics, plus links to new websites of interest.

InterTASC (https://sites.google.com/a/york.ac.uk/issg-search-filters-resource/home)

The InterTASC Information Specialists' Sub-Group Search Filter Resource is maintained by staff of the National Institute for Health and Care Excellence (NICE) and other HTA and guideline developers in the United Kingdom. They have a systematic process for searching for and identifying newly-published filters, and maintain the most complete inventory of filters, categorized by the type of literature they are intended to identify.

The InterTASC inventories are in bibliographic form and do not include the filters themselves: users must download the linked papers and websites to obtain the actual filters.

Besides the bibliographies of search filters, InterTASC includes bibliographies on topics like critical appraisal of search filters, methods papers, and links to search strategy blogs and discussion lists.

SIGN (https://www.sign.ac.uk/search-filters.html)

The Scottish Intercollegiate Guidelines Network uses filters developed in-house and filters adapted from other sources such as CADTH. They describe their filters as less sensitive than some others, but they may be more pragmatic. Filters for systematic reviews, RCTs, observational studies, diagnostic studies, and other types of literature are provided. Filters are provided for MEDLINE, Embase, and sometimes CINAHL; Ovid syntax is used.

For some searches, there are no good filters

CEP sometimes limits the scope of a review to evidence obtained in OECD countries: a proxy for well-resourced health care settings. While there are geographic subject headings in MEDLINE and Embase, they are not consistently applied. A 2021 study by Ayiku et al (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8608218/) found that such filters have good sensitivity but only screened out about 10% of hits, so they may not be worth the time to use. Furthermore, there is a risk that these filters may exclude studies conducted in both OECD and non-OECD countries.